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## Level TROLL® Instruments

*Water Level Instruments for  
Every Application & Budget*



### Level TROLL® 700 Instrument

- Optimized for aquifer characterization
- Gauged (vented) and absolute (non-vented) instruments
- Linear, fast linear, linear average, event, step linear, and true logarithmic logging modes
- Rugged titanium probe and sensor (OD: 1.83 cm; 0.72 in)

### Level TROLL® 500 Instrument

- Ideal for groundwater and surface-water monitoring
- Gauged and absolute instruments
- Linear, fast linear, and event logging modes
- Durable titanium probe and sensor (OD: 1.83 cm; 0.72 in)

### Level TROLL® 300 Instrument

- Suitable for fresh water and industrial monitoring
- Absolute instrument
- Linear, fast linear, and event logging modes
- Stainless steel probe and sensor (OD: 2.08 cm; 0.82 in)

### Powerful, Accurate, Reliable Performance

- **Superior accuracy**—For guaranteed accuracy under all operating conditions, instruments undergo extensive calibration procedures for pressure and temperature. Each instrument includes a serialized calibration report.
- **Telemetry and SCADA integration**—Access data when you need it. No adapters or confusing proprietary protocols are required. Outputs include standard Modbus/RS485, SDI-12, and 4-20 mA.
- **Low power consumption**—Batteries have a typical life of 10 years or 2 million readings. 8-36 VDC input is compatible with external batteries and solar power.
- **Intuitive interface**—Win-Situ® 5 and Win-Situ® Mobile Software simplify data collection and management. Software features setup wizards, fast data download rates, multiple water level reference options, and more.

## Applications

- Aquifer characterization
- Coastal deployments—tide/harbor levels, storm surge systems, and wetlands research
- Construction and mine dewatering
- River, lake, and reservoir monitoring
- Stormwater management

# Level TROLL® 300, 500 & 700 Instruments

| General                                         | Level TROLL 300                                                                                                          | Level TROLL 500                                                                                                                                                                                                                                                                                                                                        | Level TROLL 700                                                                                                                                                                                                                                                                                                                                                                    | BaroTROLL                                                                                                 |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Temperature ranges<sup>1</sup></b>           | Operational: -20-80° C (-4-176° F)<br>Storage: -40-80° C (-40-176° F)<br>Calibrated: -5-50° C (23-122° F)                | Operational: -20-80° C (-4-176° F)<br>Storage: -40-80° C (-40-176° F)<br>Calibrated: -5-50° C (23-122° F)                                                                                                                                                                                                                                              | Operational: -20-80° C (-4-176° F)<br>Storage: -40-80° C (-40-176° F)<br>Calibrated: -5-50° C (23-122° F)                                                                                                                                                                                                                                                                          | Operational: -20-80° C (-4-176° F)<br>Storage: -40-80° C (-40-176° F)<br>Calibrated: -5-50° C (23-122° F) |
| <b>Diameter</b>                                 | 2.08 cm (0.82 in)                                                                                                        | 1.83 cm (0.72 in)                                                                                                                                                                                                                                                                                                                                      | 1.83 cm (0.72 in)                                                                                                                                                                                                                                                                                                                                                                  | 1.83 cm (0.72 in)                                                                                         |
| <b>Length</b>                                   | 22.9 cm (9.0 in)                                                                                                         | 21.6 cm (8.5 in)                                                                                                                                                                                                                                                                                                                                       | 21.6 cm (8.5 in)                                                                                                                                                                                                                                                                                                                                                                   | 21.6 cm (8.5 in)                                                                                          |
| <b>Weight</b>                                   | 245 g (0.54 lb)                                                                                                          | 197 g (0.43 lb)                                                                                                                                                                                                                                                                                                                                        | 197 g (0.43 lb)                                                                                                                                                                                                                                                                                                                                                                    | 197 g (0.43 lb)                                                                                           |
| <b>Materials</b>                                | Stainless steel body; Delrin® nose cone                                                                                  | Titanium body; Delrin nose cone                                                                                                                                                                                                                                                                                                                        | Titanium body; Delrin nose cone                                                                                                                                                                                                                                                                                                                                                    | Titanium body; Delrin nose cone                                                                           |
| <b>Output options</b>                           | Modbus/RS485, SDI-12, 4-20 mA                                                                                            | Modbus/RS485, SDI-12, 4-20 mA                                                                                                                                                                                                                                                                                                                          | Modbus/RS485, SDI-12, 4-20 mA                                                                                                                                                                                                                                                                                                                                                      | Modbus/RS485, SDI-12, 4-20 mA                                                                             |
| <b>Battery type &amp; life<sup>2</sup></b>      | 3.6V lithium; 10 years or 2M readings                                                                                    | 3.6V lithium; 10 years or 2M readings                                                                                                                                                                                                                                                                                                                  | 3.6V lithium; 10 years or 2M readings                                                                                                                                                                                                                                                                                                                                              | 3.6V lithium; 10 years or 2M readings                                                                     |
| <b>External power</b>                           | 8-36 VDC                                                                                                                 | 8-36 VDC                                                                                                                                                                                                                                                                                                                                               | 8-36 VDC                                                                                                                                                                                                                                                                                                                                                                           | 8-36 VDC                                                                                                  |
| <b>Memory</b>                                   | 1.0 MB                                                                                                                   | 2.0 MB                                                                                                                                                                                                                                                                                                                                                 | 4.0 MB                                                                                                                                                                                                                                                                                                                                                                             | 1.0 MB                                                                                                    |
| <b>Data records<sup>3</sup></b>                 | 65,000                                                                                                                   | 130,000                                                                                                                                                                                                                                                                                                                                                | 260,000                                                                                                                                                                                                                                                                                                                                                                            | 65,000                                                                                                    |
| <b>Data logs</b>                                | 2                                                                                                                        | 50                                                                                                                                                                                                                                                                                                                                                     | 50                                                                                                                                                                                                                                                                                                                                                                                 | 2                                                                                                         |
| <b>Log types</b>                                | Linear, Fast Linear, and Event                                                                                           | Linear, Fast Linear, and Event                                                                                                                                                                                                                                                                                                                         | Linear, Fast Linear, Linear Average, Event, Step Linear, True Logarithmic                                                                                                                                                                                                                                                                                                          | Linear                                                                                                    |
| <b>Fastest logging rate &amp; Modbus rate</b>   | 2 per second                                                                                                             | 2 per second                                                                                                                                                                                                                                                                                                                                           | 4 per second                                                                                                                                                                                                                                                                                                                                                                       | 1 per minute                                                                                              |
| <b>Fastest SDI-12 &amp; 4-20 mA output rate</b> | 1 per second                                                                                                             | 1 per second                                                                                                                                                                                                                                                                                                                                           | 1 per second                                                                                                                                                                                                                                                                                                                                                                       | 1 per second                                                                                              |
| <b>Real-time clock</b>                          | Accurate to 1 second/24-hr period                                                                                        | Accurate to 1 second/24-hr period                                                                                                                                                                                                                                                                                                                      | Accurate to 1 second/24-hr period                                                                                                                                                                                                                                                                                                                                                  | Accurate to 1 second/24-hr period                                                                         |
| <b>Sensor Type/Material</b>                     | Piezoresistive; stainless steel                                                                                          | Piezoresistive; titanium                                                                                                                                                                                                                                                                                                                               | Piezoresistive; titanium                                                                                                                                                                                                                                                                                                                                                           | Piezoresistive; titanium                                                                                  |
| <b>Range</b>                                    | <i>Absolute (non-vented)</i><br>30 psia: 10.9 m (35.8 ft)<br>100 psia: 60.1 m (197.3 ft)<br>300 psia: 200.7 m (658.7 ft) | <i>Absolute (non-vented)</i><br>30 psia: 10.9 m (35.8 ft)<br>100 psia: 60.1 m (197.3 ft)<br>300 psia: 200.7 m (658.7 ft)<br>500 psia: 341.3 m (1120 ft)<br><br><i>Gauged (vented)</i><br>5 psig: 3.5 m (11.5 ft)<br>15 psig: 11 m (35 ft)<br>30 psig: 21 m (69 ft)<br>100 psig: 70 m (231 ft)<br>300 psig: 210 m (692 ft)<br>500 psig: 351 m (1153 ft) | <i>Absolute (non-vented)</i><br>30 psia: 10.9 m (35.8 ft)<br>100 psia: 60.1 m (197.3 ft)<br>300 psia: 200.7 m (658.7 ft)<br>500 psia: 341.3 m (1120 ft)<br>1000 psia: 703 m (2306.4 ft)<br><i>Gauged (vented)</i><br>5 psig: 3.5 m (11.5 ft)<br>15 psig: 11 m (35 ft)<br>30 psig: 21 m (69 ft)<br>100 psig: 70 m (231 ft)<br>300 psig: 210 m (692 ft)<br>500 psig: 351 m (1153 ft) | 0 to 16.5 psi; 0 to 1.14 bar                                                                              |
| <b>Burst pressure</b>                           | Maximum 2x range; burst 3x range                                                                                         | Maximum 2x range; burst 3x range                                                                                                                                                                                                                                                                                                                       | Maximum 2x range; burst 3x range                                                                                                                                                                                                                                                                                                                                                   | Vacuum/over-pressure above 16.5 psi damages sensor                                                        |
| <b>Accuracy @ 15° C<sup>4</sup></b>             | ±0.1% full scale (FS)                                                                                                    | ±0.05% FS                                                                                                                                                                                                                                                                                                                                              | ±0.05% FS                                                                                                                                                                                                                                                                                                                                                                          | ±0.1% FS                                                                                                  |
| <b>Accuracy (FS)<sup>5</sup></b>                | ±0.2% FS                                                                                                                 | ±0.1% FS                                                                                                                                                                                                                                                                                                                                               | ±0.1% FS                                                                                                                                                                                                                                                                                                                                                                           | ±0.2% FS                                                                                                  |
| <b>Resolution</b>                               | ±0.01% FS or better                                                                                                      | ±0.005% FS or better                                                                                                                                                                                                                                                                                                                                   | ±0.005% FS or better                                                                                                                                                                                                                                                                                                                                                               | ±0.005% FS or better                                                                                      |
| <b>Units of measure</b>                         | Pressure: psi, kPa, bar, mbar, mmHg, inHg, cmH <sub>2</sub> O, inH <sub>2</sub> O<br>Level: in, ft, mm, cm, m            | Pressure: psi, kPa, bar, mbar, mmHg, inHg, cmH <sub>2</sub> O, inH <sub>2</sub> O<br>Level: in, ft, mm, cm, m                                                                                                                                                                                                                                          | Pressure: psi, kPa, bar, mbar, mmHg, inHg, cmH <sub>2</sub> O, inH <sub>2</sub> O<br>Level: in, ft, mm, cm, m                                                                                                                                                                                                                                                                      | Pressure: psi, kPa, bar, mbar, mmHg, inHg, cmH <sub>2</sub> O, inH <sub>2</sub> O                         |
| <b>Temperature Sensor</b>                       |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                           |
| <b>Accuracy &amp; resolution</b>                | ±0.1° C; 0.01° C or better                                                                                               | ±0.1° C; 0.01° C or better                                                                                                                                                                                                                                                                                                                             | ±0.1° C; 0.01° C or better                                                                                                                                                                                                                                                                                                                                                         | ±0.1° C; 0.01° C or better                                                                                |
| <b>Units of measure</b>                         | Celsius or Fahrenheit                                                                                                    | Celsius or Fahrenheit                                                                                                                                                                                                                                                                                                                                  | Celsius or Fahrenheit                                                                                                                                                                                                                                                                                                                                                              | Celsius or Fahrenheit                                                                                     |
| <b>Warranty</b>                                 | 1 year                                                                                                                   | 2 years                                                                                                                                                                                                                                                                                                                                                | 2 years                                                                                                                                                                                                                                                                                                                                                                            | 2 years                                                                                                   |
|                                                 | Up to 5-year extended warranties are available for all instruments—call for details                                      |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                           |

## BaroTROLL® Instrument

The titanium BaroTROLL measures and logs barometric pressure and temperature. Use the BaroTROLL in conjunction with Level TROLL Instruments.

### Win-Situ® Baro Merge™

Software simplifies post-correction of water level data. Barometric readings are automatically subtracted from data collected by an absolute Level TROLL to compensate for changes in pressure due to barometric fluctuations.

## 24/7 Support

In-Situ technical support specialists assist with instrument setup, application support, and troubleshooting. Call for free technical support.

<sup>1</sup> Temperature range for non-freezing liquids

<sup>2</sup> Typical battery life when used within the factory-calibrated temperature range.

<sup>3</sup> 1 data record = date/time plus 2 parameters logged (no wrapping) from device within the factory-calibrated temperature range

<sup>4</sup> Across factory-calibrated pressure range

<sup>5</sup> Across factory-calibrated pressure and temperature ranges

Specifications are subject to change without notice. Delrin is a registered trademark of E.I. du Pont de Nemours and Company.



**Call to purchase or rent—[www.in-situ.com](http://www.in-situ.com)**

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